

# AMERICAN SOCIETY FOR TESTING MATERIALS



## ~ BULLETIN ~

ENGINEERS' CLUB BUILDING.

1315 SPRUCE ST.

PHILADELPHIA, PA.

NUMBER 3

OCTOBER 25, 1921

### Current Publications of the Society

The Society issues this year three regular publications, which are sent to all members in good standing, and one special publication sent to members who order it. The volume of material to be published is considerably greater this year than during the past two years, owing to the publication of the triennial edition of the Book of Standards. The total number of pages to be printed is estimated as 3000.

**Book of A.S.T.M. Standards.**—The 1921 Book of A.S.T.M. Standards (890 pp.) contains the 160 standards of the Society, including new and revised specifications and methods adopted by letter ballot vote of the Society as recorded elsewhere in this issue. Distribution of the volume was completed in September.

**Supplement to the 1920 Year Book.**—This pamphlet (32 pages) contains the list of officers, list of new members, revised list of standards and tentative standards and other information. It was distributed with the Book of Standards.

**Proceedings.**—The final editing of the committee reports, new and revised tentative standards, papers and discussions that constitute the Proceedings is nearly completed. It is expected that the Proceedings will be ready for distribution by December 15.

As previously announced, the Proceedings will be issued this year in one volume (Vol. 21, 1921) of about 1150 pages. Those members who have ordered their Proceedings in half-leather binding and have paid for two volumes in that binding for 1921, will have their accounts credited for the binding of one volume. This credit will appear on the next bill for membership dues which will be rendered on January 1, 1922.

**Book of A.S.T.M. Tentative Standards.**—This volume (518 pages) contains all of the tentative standards, of which there are 127. Many of these were continued without revision from the preceding year and therefore do not appear in the current volume of the Proceedings. Announcement of the decision to publish this volume was made in Circular to Members No. 167, August 30, 1921, and orders for it were solicited. A very gratifying response resulted, nearly 500 orders having been received from members which, together with orders from libraries and other sources, have entirely justified the issuing of this special publication. The volume is now in the bindery and it is expected to complete distribution to those who have ordered it by November 1.

### 1922 Annual Meeting Scheduled for Atlantic City

The questionnaire recently conducted by the Executive Committee to ascertain the wishes of the members regarding the time and place for holding the 1922 annual meeting has been canvassed and the results were considered by the Executive Committee at its quarterly meeting on October 11. The votes for place and time of meeting resulted as follows:

PLACE.		TIME.	
Atlantic City.....	229	Latter part of June.....	219
Asbury Park.....	135	June.....	91
Chicago.....	49	Third week in June.....	12
New York City.....	16	First half of June.....	11
Cleveland.....	11	June or July.....	14
Philadelphia.....	7	May.....	12
Detroit.....	6	May or June.....	7
Los Angeles.....	6	July.....	14
Pittsburgh.....	6	September.....	16
Scattering.....	37	Scattering.....	35
Total.....	502	Total.....	431

In pursuance of this clearly expressed wish of a large proportion of the members that voted, the Executive Committee has decided to hold the 1922 annual meeting in Atlantic City during the latter part of June, provided suitable arrangements can be made for the meeting. A Committee on Annual Meeting has been charged with the responsibility of making these arrangements.

Many members suggested the desirability of arranging the annual meetings of the Society to avoid conflicts with other societies. This has always been carefully kept in mind, but it has not always been possible to avoid conflicts because so many organizations find the month of June to be advantageous for their meetings. Members are assured that every effort possible will be made to avoid such conflicts.

A third matter canvassed in the questionnaire was the plan of holding annual meetings at different places in succeeding years; 302 members voted in favor of such a plan and 182 against it. Many interesting and valuable suggestions regarding this plan were received, and the Executive Committee has charged a special committee with the task of carefully reviewing and digesting these suggestions and preparing a report for further consideration of the Executive Committee. It is felt that the results of this questionnaire have been helpful and illuminating, and the interest the members have shown in offering suggestions has been very gratifying.

### Special Committee Appointed to Study Physical Properties of Reinforcement Bars

At the joint request of Committees A-1 on Steel and C-2 on Reinforced Concrete, the Executive Committee has appointed a special committee to conduct an investigation of the physical properties of plain and deformed concrete reinforcement bars. The personnel of the committee is:

E. E. Hughes, Franklin Steel Co.  
R. L. Humphrey, Consulting Engineer.  
A. E. Lindau, Corrugated Bar Co.  
C. F. W. Rys, Carnegie Steel Co.  
W. A. Slater, U. S. Bureau of Standards.  
J. J. Yates, Central Railroad of New Jersey.

The committee met for organization at the Society headquarters on September 23 and elected Mr. Humphrey temporary chairman and Mr. Slater temporary secretary. Discussion of the work before the committee resulted in a tentative program of tests and an estimate of the cost of the investigation. The committee will meet again in November to perfect the program of tests, discuss methods of testing, securing of material for test, and arranging for financial support of the investigation.

The primary object of the investigation is the study of physical properties of steel reinforcement bars,—plain, deformed and twisted,—rolled from the four different grades now in commercial use, tested in the form as rolled and as machined specimens. The data obtained will serve as a basis for possible revisions of the Society's specifications for reinforcement bars. The investigation will have a direct bearing upon the work of the Joint Committee on Standard Specifications for Concrete and Reinforced Concrete. This committee has suggested an extension of the scope of the investigation to include a study of the efficiency of deformed bars when used as reinforcing in concrete, with special reference to the effect of the design of the bar on its bond resistance.

### Society to Take Over Work of Joint Rubber Insulation Committee

The Joint Rubber Insulation Committee, which formulated the Procedure for the Analysis of Rubber Compound that has been printed by the Society since 1916 as an appendix to the Tentative Specifications for Insulated Wire and Cable: 30-per-cent Hevea Rubber, recently requested the Society to carry on the further development of this work. The Joint Rubber Insulation Committee has completed its essential work and since its members are no longer in a position to continue its activities, the committee desires to bring its work within the influence of a national technical society such as ours.

The Executive Committee has accepted this invitation to sponsor the further development of Analysis of Rubber Compound, and has placed the matter in the hands of Committee D-11 on Rubber Products.

### Building Code Committee

The U. S. Department of Commerce has appointed a Building Code Committee to define some of the needless variations and disagreements in building codes, and to suggest amendments. The personnel of this committee has recently been announced as follows: Ira H. Woolson, *Chairman*, Edwin H. Brown, William K. Hatt, Rudolph P. Miller, J. A. Newlin, Ernest J. Russell and Joseph R. Worcester. All are members of the Society.

At the request of Secretary of Commerce Hoover, the Society will cooperate with this committee by making available to it, whenever desired, any data upon the subject of building codes that have been compiled by the committees of the Society. Sets of the Standards and Tentative Standards of the Society have been furnished to the committee.

### Tag Closed Tester Agreement

The Tag Closed Tester, specified as the instrument for flash point test in the Society's Standard Test for Flash Point of Volatile Flammable Liquids (D 56-21), was developed by Committee D-1 on Preservative Coatings for Structural Materials in cooperation with the C. J. Tagliabue Manufacturing Company. This instrument was devised as the result of an exhaustive study by the committee, begun in 1914, of the principal instruments for determining flash point then on the market. A patent on the instrument was granted to Charles J. Tagliabue and is now owned by the Tagliabue Company. Through an oversight, the instrument was adopted as standard by the Society without prior consideration by the Executive Committee, as required by the By-laws in the case of the use in the Society's standards of any devices which form the subject-matter of an existing patent. The situation has been carefully reviewed by the Executive Committee, in consultation with Committee D-1 and the Tagliabue Company, and an agreement has been executed with the Tagliabue Company by which that company will issue licenses for the nominal sum of One Dollar (\$1.00) to other manufacturers, approved by the Executive Committee of the Society, permitting them to make the Tag Closed Tester under certain stipulated conditions.

The agreement is quoted below:

#### AGREEMENT.

C. J. TAGLIABUE MANUFACTURING COMPANY  
WITH  
AMERICAN SOCIETY FOR TESTING MATERIALS.

Whereas, the TAG CLOSED FLASH-POINT TESTER has been recommended to the American Society for Testing Materials for adoption as standard; and the C. J. Tagliabue Manufacturing Company, a New York corporation, is now the owner by assignment from Charles J. Tagliabue of Letters Patent of the United States No. 1,236,123, granted Charles J. Tagliabue on August 7, 1917, under which said Tester is manufactured; and the American Society for Testing Materials is unwilling to adopt any scientific instrument the monopoly of the manufacture and sale of which is held by any person or corporation, and has requested the making of this agreement;

Now, in consideration of the premises and of the adoption of said instrument by the American Society for Testing Materials, the C. J. Tagliabue Manufacturing Company, a corporation duly created by or under the laws of the State of New York, and having an office in Brooklyn Borough, New York City, New York, hereby covenants to and with the American Society for Testing Materials that it will from and after the adoption of said instrument as standard by the American Society for Testing Materials, and during the entire term of said patent, grant licenses to manufacturers of scientific instruments in the United States of America, of standing and repute, to manufacture and sell in the United States of America under said Letters Patent, who have been first approved by the Executive Committee of the American Society for Testing Materials, and certified in writing by such Committee, over the signatures of the duly authorized officers thereof, to said Company as so approved, such licenses to be in the form hereto annexed and marked "Exhibit A".

In witness whereof, the C. J. Tagliabue Manufacturing Company has hereunto set its hand and seal by its President thereunto duly authorized, this 15th day of August, 1921, at the City and State of New York.

C. J. TAGLIABUE MANUFACTURING COMPANY,  
In presence of: By C. J. TAGLIABUE,  
L. C. IRWIN. President.

The above agreement is hereby executed August 31, 1921, for the

AMERICAN SOCIETY FOR TESTING MATERIALS,  
In presence of: By C. D. YOUNG,  
L. G. KETTERER. President.  
M. A. OUNAN. Attest: C. L. WARWICK,  
Secretary-Treasurer.

<sup>1</sup> Exhibit "A" constitutes the License Agreement and stipulates conditions to be observed in the manufacture of the Tester by the licensee. A copy is on file in the office of the Secretary-Treasurer.



## Tests on Rivet Steel Nearly Completed

The Joint Committee on Investigation of Effect of Phosphorus and Sulfur in Steel has nearly completed the tests outlined to determine the effect of sulfur in rivet steel. At a meeting of the Joint Committee held at Asbury Park during the annual meeting of the Society, the results of over 1000 tests made at the Watertown Arsenal and the U. S. Naval Experimental Station on rivet steel in natural and annealed condition, with sulfur content varying approximately from 0.03 to 0.08 per cent, were reported. Additional tests on quenched material will complete this portion of the investigation. A meeting of the Committee on Tests was held at Watertown Arsenal, Watertown, Mass., on October 22, 1921, to review the completed test data. It is planned to release the data for general publication in the technical press as soon thereafter as possible, with suitable descriptions of the material and tests. Publication in completed form will be made through a technologic paper of the U. S. Bureau of Standards.

The work of securing material for investigation of sulfur in the second group of steels under consideration, namely, plates and structural shapes, is now going forward. Beginning October 25, the Committee on Manufacture will witness at the Cambria Steel Co., Johnstown, Pa., the manufacture of a part of the steel in this group, of which the sulfur content is to range from 0.03 to 0.08 per cent, with carbon, manganese and phosphorus as nearly constant as possible.

## Translated Specifications Now Being Distributed

Previous numbers of the Bulletin have contained announcement of the publication by the U. S. Department of Commerce of English-Spanish and English-French editions of some 61 A.S.T.M. specifications particularly applicable to export trade. These publications constitute a series covering industrial standards for materials, which will include standards prepared by the Government and by technical societies and other organizations. The preface of each number contains the following statement:

"The purpose of this series is to facilitate commerce between the United States and foreign countries by gathering together and making available standards for materials of various kinds, commercially acceptable and representing good American practice, through their translation into various foreign languages."

The list of standards so far published, with the Spanish and French serial numbers, is given in the opposite column.

The distribution of these standards in channels that will best serve to promote foreign trade is now engaging the attention of the Department of Commerce. Copies have been placed on file with commercial attaches and trade commissioners in those countries where the translations are applicable. Through the cooperation of the U. S. Chamber of Commerce, six complete sets of the specifications have been sent to each of the seventeen associated chambers in foreign countries. A most effective means of distribution, and one in which the Society can be and already has been of much help, is for companies engaged in export trade to send copies of those numbers in which they are interested to their foreign agents and customers. Many members of the Society are in a position to aid effectively in this way. The interest and cooperation of two members of the Society—the Baldwin Locomotive Works and the Portland Cement Association—have been secured and others are invited to lend their support to these efforts of the Department of Commerce. Copies of all of these specifications are sold by the Superintendent of Documents, Government Printing Office, Washington, D. C.

Any member of the Society who desires further information about these standards and their distribution is urged to communicate promptly with the Secretary-Treasurer.

French Translation Serial No.	Spanish Translation Serial No.	Title of Specification
101	1	Portland Cement. (C 9)
102	2	Carbon-steel Rails. (A 1)
103	3	Open-hearth Steel Girder and High Tee Rails (A 2)
104	4	Low-carbon Steel Splice Bars. (A 3)
105	5	Medium-carbon Steel Splice Bars. (A 4)
106	6	High-carbon Steel Splice Bars. (A 5)
107	30	Extra-high-carbon Steel Splice Bars. (A 6)
108	7	Structural Steel for Bridges. (A 7)
109	8	Structural Steel for Buildings. (A 9)
110	9	Structural Steel for Locomotives. (A 10)
111	35	Structural Steel for Cars. (A 11)
112	10	Carbon-steel Bars for Railway Springs. (A 14)
113	60	Carbon-steel and Alloy-steel Blooms, Billets, and Slabs for Forgings. (A 17)
114	11	Carbon-steel and Alloy-steel Forgings. (A 18)
115	12	Quenched-and-Tempered Carbon-steel Axles, Shafts, and other Forgings for Locomotives and Cars. (A 19)
116	62	Quenched-and-Tempered Alloy-steel Axles, Shafts, and other Forgings for Locomotives and Cars. (A 63)
117	13	Carbon-steel Forgings for Locomotives. (A 20)
118	14	Carbon-steel Car and Tender Axles. (A 21)
119	15	Wrought Solid Carbon-steel Wheels for Steam Railway Service. (A 57)
120	16	Steel Tires. (A 26)
121	17	Steel Castings. (A 27)
122	18	Lap-welded and Seamless Steel Boiler Tubes for Locomotives. (A 28)
123	19	Lap-welded and Seamless Steel and Wrought-iron Boiler Tubes for Stationary Service. (A 52)
124	20	Welded Steel Pipe. (A 53)
125	21	Boiler and Firebox Steel for Locomotives. (A 30)
126	22	Boiler Rivet Steel. (A 31)
127	23	Lap-welded Charcoal-iron Boiler Tubes for Locomotives. (A 38)
128	24	Staybolt Iron. (A 39)
129	25	Engine-bolt Iron. (A 40)
130	26	Refined Wrought-iron Bars. (A 41)
131	27	Wrought-iron Plates. (A 42)
132	61	Welded Wrought-iron Pipe. (A 72)
133	28	Cast-iron Pipe and Special Castings. (A 44)
134	29	Locomotive Cylinders. (A 45)
135	50	Hard-drawn Copper Wire. (B 1)
136	51	Medium Hard-drawn Copper Wire. (B 2)
137	52	Soft or Annealed Copper Wire. (B 3)
138	53	Lake Copper Wire Bars, Cakes, Slabs, Billets, Ingots, and Ingot Bars. (B 4)
139	54	Electrolytic Copper Wire Bars, Cakes, Slabs, Billets, Ingots, and Ingot Bars. (B 5)
140	55	Spelter. (B 6)
141	31	Quenched High-carbon Steel Splice Bars. (A 49)
142	32	Quenched Carbon-steel Track Bolts. (A 50)
143	33	Quenched Alloy-steel Track Bolts. (A 51)
144	34	Structural Nickel Steel. (A 8)
145	36	Structural Steel for Ships. (A 12)
146	37	Rivet Steel for Ships. (A 13)
147	38	Billet-steel Concrete Reinforcement Bars. (A 15)
148	39	Rail-steel Concrete Reinforcement Bars. (A 16)
149	40	Cold-rolled Steel Axles. (A 22)
150	41	Wrought Solid Carbon-steel Wheels for Electric Railway Service. (A 25)
151	42	Automobile Carbon and Alloy Steels. (A 29)
152	43	Cold-drawn Bessemer Steel Automatic Screw Stock. (A 32)
153	44	Cold-drawn Open-hearth Steel Automatic Screw Stock. (A 54)
154	45	Iron and Steel Chain. (A 56)
155	46	Foundry Pig Iron. (A 43)
156	48	Malleable-iron Castings. (A 47)
157	49	Gray-iron Castings. (A 48)
158	56	Manganese-bronze Ingots for Sand Castings. (B 7)
159	57	Purity of Raw Linseed Oil from North American Seed. (D 1)
160	58	Purity of Boiled Linseed Oil from North American Seed. (D 11)
161	59	Turpentine. (D 13)

# A.S.T.M. BULLETIN

Issued January, April, July and October  
by the

AMERICAN SOCIETY FOR TESTING MATERIALS  
Engineers' Club Building, 1315 Spruce St., Philadelphia, Pa.

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*Vice-Presidents*

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(Term Expiring in 1923)

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J. K. RITTENHOUSE

Number 3

October 25, 1921

## A Word From The Secretary

With this, the third issue of the BULLETIN and the first one to be published in eight pages, the Secretary wishes to direct attention to the very gratifying response that has been made by the standing committees to the request for information about their current activities that would be of interest to the general membership. The prime function of the BULLETIN is to serve as a medium of informing our members and others of current Society affairs, notably our committee activities as they develop between annual meetings. In each of the first two issues, one page was devoted to committee notes; in the present issue three times that space has been required to record the information of interest about our committees' work. No fewer than thirteen committees have met during September and October, showing clearly the desire of the committees to get their work under way as soon as possible after summer vacations are over. The plan of having the Society headquarters act as a clearing house for current information regarding committee work has been of considerable help to the Secretary and to many of the committees themselves.

It will be the continued aim of the Secretary to make the BULLETIN of greatest interest and value to the members. If you have any suggestions to make regarding further opportunities for service to the members through the BULLETIN they will be heartily welcomed.

## Membership

The present membership of the Society is 3022. In common with other national societies we have felt the effect of industrial conditions which are directly reflected in the decreased number of new members this year, despite continued efforts at Society headquarters and on the part of many members. Our growth so far this year, however, has been quite substantial, there having been acquired 322 new members.

The members are urged not to relax their interest and efforts in securing new members simply because the year is drawing to a close. New members joining between now and December 31 will, if they pay the entire year's dues, receive all publications. If desired they may pay half of

the dues but in that case they will not be entitled to receive the current Proceedings. There are bound in the Book of Standards two application blanks and a form upon which the members may suggest to the Secretary prospective new members.

Do not forget that every new member adds just that much strength to the support of your Society's activities.

## Samuel Stockton Voorhees

It is with a distinct sense of sorrow and loss that we announce to the members the death of Samuel Stockton Voorhees, Chemist of the Bureau of Standards, long a member of our Society, a past member of the Executive Committee, and past Vice-President. Mr. Voorhees, who was fifty-four years old, had been in ill health for some time and had left Washington for a vacation in the Maine woods with the hope that a rest would restore him to health. While on this vacation he became ill and was removed to a hospital in Portland, Me., where he died on Friday, September 23.

Mr. Voorhees was educated at Lehigh University and at the George Washington University. From 1889 to 1896 he was chemist for the Cambria Iron Co. and the Pennsylvania Railroad at Altoona, Pa., from 1896 until 1899 he was chemist in charge for the Southern Railway in Washington, and from 1899 to 1901 he held a similar position with the New York Central and Hudson River Railroad.

Since 1901, Mr. Voorhees was connected with the government, as chemist and engineer, and during the past eleven years he has been the engineer-chemist in charge of the Bureau of Standards' chemical work on corrosion, iron and steel, non-ferrous metals, cement, and bitumens. Previously he was engineer of tests for the technologic branch of the U. S. Geological Survey for two years, and from 1901 to 1908 he was engineer of tests for the Supervising Architect's Office of the Treasury Department.

He was a member of the Cosmos Club, the American Chemical Society, the Society of Chemical Industry, the American Society for Testing Materials, and Delta Phi. He leaves a widow, who was Laura Toucey Kase of Danville, Pa., and three daughters.

## Resolution Adopted by the Executive Committee

"The Executive Committee of the American Society for Testing Materials learns with profound sorrow of the death, on September 23, 1921, of one of the most active and beloved members of the Society, Samuel Stockton Voorhees. A member since the Society was incorporated in 1902, he served in many capacities; for ten years as chairman of the Committee on Preservative Coatings, and from 1914 as chairman of the Committee on Corrosion of Iron and Steel. He was a member of the Executive Committee from 1914 to 1916 and Vice-President of the Society from 1916 to 1918. During the entire period of his Society activities he was in the service of the government in various capacities as engineer and chemist, where he has left a notable record of achievement.

"His loyal service to the Society and the charm and kindness of his personality have left a deep and lasting imprint upon the work of the American Society for Testing Materials.

"Resolved, that this minute be recorded in the Minutes of the Executive Committee, and that copies be transmitted to Mrs. Voorhees and the United States Bureau of Standards."



## Adoption of Revised and New Standards

The letter ballot on (1) revisions in 47 Standards and (2) adoption of 16 new Standards, ordered at the annual meeting, was canvassed on August 20, 1921, by a committee of tellers consisting of Mr. Horace C. Porter and Mr. F. B. Lysle, who have reported as follows:

	Aye	Nay	Not Voting
<b>REVISION OF STANDARDS.</b>			
<i>Standard Specifications for:</i>			
1. Open-hearth Steel Girder Rails (A 2).....	110	2	349
2. Low-Carbon-Steel Splice Bars (A 3).....	123	4	334
3. Quenched High-Carbon-Steel Splice Bars (A 49).....	118	4	339
4. Quenched Carbon-Steel Track Bolts (A 50).....	121	3	337
5. Quenched Alloy-Steel Track Bolts (A 51).....	121	3	337
6. Steel Track Spikes (A 65).....	116	1	344
7. Steel Screw Spikes (A 66).....	116	2	343
8. Structural Steel for Bridges (A 7).....	148	4	309
9. Structural Nickel Steel (A 8).....	142	0	319
10. Structural Steel for Buildings (A 9).....	155	3	303
11. Structural Steel for Locomotives (A 10).....	138	3	320
12. Structural Steel for Cars (A 11).....	140	1	320
13. Structural Steel for Ships (A 12).....	118	1	342
14. Rivet Steel for Ships (A 13).....	107	3	351
15. Carbon-Steel Bars for Railway Springs (A 14).....	142	0	319
16. Carbon-Steel Bars for Railway Springs with Silicon Requirements (A 18).....	132	0	329
17. Carbon-Steel Bars for Vehicle and Automobile Springs (A 58).....	123	0	338
18. Silico-Manganese-Steel Bars for Springs (A 59).....	127	3	331
19. Chrome-Vanadium-Steel Bars for Springs (A 60).....	126	1	334
20. Billet-Steel Reinforcement Bars (A 15).....	149	4	308
21. Carbon-Steel and Alloy-Steel Blooms, etc., for Forgings (A 17).....	155	4	302
22. Carbon-Steel and Alloy-Steel Forgings (A 18).....	155	2	304
23. Quenched-and-Tempered Carbon-Steel Axles, Shafts, etc. (A 19).....	140	2	319
24. Quenched-and-Tempered Alloy-Steel Axles, Shafts, etc. (A 63).....	137	3	321
25. Carbon-Steel Forgings for Locomotives (A 20).....	134	1	326
26. Cold-Rolled Steel Axles (A 22).....	116	4	341
27. Steel Castings (A 27).....	140	8	313
28. Lap-Welded and Seamless Steel Boiler Tubes for Locomotives (A 28).....	103	2	356
29. Welded Steel Pipe (A 53).....	120	1	340
30. Automobile Steels (A 29).....	111	2	348
31. Boiler and Firebox Steel (A 30).....	128	2	331
32. Boiler Rivet Steel (A 31).....	133	2	326
33. Lap-Welded Charcoal-Iron Boiler Tubes for Locomotives (A 38).....	81	1	379
34. Welded Wrought-Iron Pipe (A 72).....	100	1	360
35. Staybolt Iron (A 39).....	98	2	361
36. Engine-Bolt Iron (A 40).....	96	2	363
37. Bare Copper Cable (B 8).....	52	2	407
38. Copper Bars for Staybolts (B 12).....	51	0	410
39. Drain Tile (C 4).....	57	2	402
40. Turpentine (D 13).....	89	1	371
<i>Standard Tests for:</i>			
41. Flash Point of Paint Thinners (D 56).....	125	1	335
42. Lubricants (D 47).....	124	0	337
43. Penetration of Bituminous Materials (D 5).....	99	0	362
<i>Standard Methods for:</i>			
44. Determination of Softening Point of Bituminous Materials (D 36).....	104	1	356
45. Laboratory Sampling of Coal (D 22).....	141	3	317
46. Laboratory Sampling of Coke (D 37).....	132	3	326
<i>Recommended Practice for:</i>			
47. Annealing of Miscellaneous Rolled and Forged Objects (A 35).....	130	3	328
<b>TENTATIVE STANDARDS TO BE ADOPTED AS STANDARD.</b>			
<i>Tentative Specifications for:</i>			
1. Commercial Bar Steels (A 80).....	143	4	314
2. Extra Refined Wrought-Iron Bars (A 79).....	109	2	350
3. Bronze Bearing Metals for Turntables (B 22).....	75	0	386
4. Aluminum Casting Alloys (B 26).....	67	1	393
5. Bronze Bearing Metal (B 31).....	75	3	383
6. Solder Metal (B 32).....	83	0	378
7. Tinned Soft Copper Wire (B 33).....	68	0	393
8. Sheet High Brass (B 36).....	59	1	401
9. Gypsum Plasters (C 28).....	49	3	409
<i>Tentative Tests for:</i>			
10. Unit Weight of Aggregate for Cement Concrete (C 29).....	109	1	351
11. Quantity of Clay and Silt in Gravel for Highway Construction (D 72).....	88	1	372
12. Quantity of Clay and Silt in Sand for Highway Construction (D 74).....	90	1	370
<i>Tentative Methods for:</i>			
13. Chemical Analysis of Alloys of Lead, Tin, Antimony and Copper (B 18).....	88	4	369
14. Ultimate Chemical Analysis of Chrome Ores (C 18).....	60	3	398
15. Making and Storing Specimens of Concrete in the Field (C 31).....	91	0	370
<i>Tentative Definitions of:</i>			
16. Terms Relating to Wrought-Iron Specifications (A 81).....	108	1	352

Total number of legal ballots cast..... 461

The ballot on reconsideration of the adoption of the revised Specifications for Turpentine (item No. 40 in the above tabulation) sent out by the Executive Committee with Circular to Members No. 167, August 30, 1921, was canvassed on September 15, 1921, by the same committee of tellers, who reported 244 affirmative votes, 3 negative, 180 not voting; total number of ballots cast, 427.

## Errata in 1921 Book of A.S.T.M. Standards

The attention of the members of the Society is called to three errors in the 1921 Book of A.S.T.M. Standards.

In the Standard Specifications for Lap-Welded Charcoal-Iron Boiler Tubes for Locomotives (A 38-21), page 308, the permissible variation in thickness of swaged ends of boiler tubes as given in Section 13 (b) should read 3 gages heavier instead of 2 gages.

In the Standard Specifications for Manganese-Bronze Ingots for Sand Castings (B 7-14), page 422, the percentage of zinc as given in Section 3 should read 36 to 45 per cent instead of 36 to 54 per cent.

In the Standard Method of Test for Flash Point of Volatile Flammable Liquids (D 56-21) on page 669, the depth of oil surface below top of cup as given in the table of dimensions should read 1½ in. instead of 1¾ in.

It is requested that members make the corrections indicated in their copies of the Book of Standards.

## Unknown Addressess

Persons who know the present addresses of the members whose names and last known addresses are given below, are asked to advise the Secretary-Treasurer.

EMERSON, JOHN B., United Alloy Steel Corp., Canton, Ohio.  
HALL, OLIVER A., Capt., Engr., U. S. Army, Chemical Warfare Service School, Lakehurst Proving Ground, Lakehurst, N. J.  
JOHNSTON, THOMAS J., Aeronautical Material Testing Eng., Engineering Division, McCook Field, Dayton, Ohio.  
MUSSEY, WILLIAM H., Sawpit, Col.  
NAG, SURENDRA C., Research Laboratory, Lewis Institute, Chicago, Ill.  
OFFICE, L. R., Ceramic Chemist, H. Koppers Co., 300 Stratford Ave., Pittsburgh, Pa.  
SCHLEIFER, ARTHUR, Interborough Rapid Transit Co., 74th St. and East River, New York City.  
SMILEY, HAROLD JOHN, Ch. Metallurgist, Hayes Wheel Co., Jackson, Mich.  
SMITH, A. CRAWFORD, JR., Civil Engineer, 107 Law Bldg., Baltimore, Md.  
SMITH, HADLEY, Chief Inspector, Remington-Typewriter Co., Iliion, N. Y.  
STALKNECHT, AUGUST C., Proprietor, U. S. A. Grease Co., 408 S. Nineteenth St., Pittsburgh, Pa.  
TENNEY, G. E., Captain, Ordnance Dept., U. S. A., Quarters, 2628 Scottwood Ave., Toledo, Ohio.

## List of Publications

**Proceedings, Volume 21 (1921).**—The Proceedings will this year be issued in one volume of about 1150 pages. The volume will contain the committee reports with discussions, new and revised tentative standards and the technical papers with discussions. Ready about December 15. Prices to non-members; paper \$10, cloth \$11, half-leather \$12.50. To members for extra copies: \$6, \$7 and \$8.50 respectively.

**Book of A.S.T.M. Standards.**—Issued triennially. The 1921 edition (890 pp.) contains 160 standards adopted by the Society. Prices to non-members: cloth \$10, half-leather \$11.50. To members for extra copies: \$7 and \$8.50.

**Book of A.S.T.M. Tentative Standards.**—The 1921 edition (518 pp.) contains 127 tentative standards, issued by the Society. Ready November 1. Prices to non-members: paper \$5, cloth \$6. To members: \$3.50 and \$4.50.

**Separate Standards and Tentative Standards.**—Separate copies of all standards and tentative standards are available. The price is 25 cents for a single copy and in lots up to 50. Larger quantities are furnished at lower prices.

**Complete Sets of Proceedings** from 1902 to 1921, inclusive (with the exception of Vol. I and III). Special prices are made to members for extra copies and for complete sets. Binding in paper, cloth or half-leather.

**Miscellaneous.**—Volume of annual reports of Committee D-1 on Preservative Coatings for Structural Materials for the years 1903-1914 (567 pp.). Price \$5.00 in cloth.

Progress report of Joint Committee on Specifications for Concrete and Reinforced Concrete (1921). Price, \$1.50.

Inquiries and orders should be directed to:

AMERICAN SOCIETY FOR TESTING MATERIALS  
1315 Spruce Street, Philadelphia

## A.S.T.M. Committee Activities.

Space in each issue of the BULLETIN is reserved for items of interest about committee activities. Officers of committees are invited to prepare information of suitable character for publication in this section. A schedule of committee meetings for three months in advance will be published in each issue.

### Review and Development of Methods of Test

At a meeting of the Advisory Committee of Committee E-1 on Methods of Testing held at the Society headquarters on October 12, plans were laid for the review of all existing methods of test by Committee E-1 along the broad comprehensive lines that were contemplated in the reorganization of Committee E-1 effected a year ago. First to be considered are some fifty methods of test now specified in the tentative standards. In this review the test will be considered not only with respect to the material to which it is applied in the specific method under study, but a more fundamental study is contemplated from the broader viewpoint of the test as a type of test that is made upon a variety of materials. As an illustration, there are specified among the tentative methods compression tests of such materials as concrete, cement mortar, sewer brick, hollow building tile, molded insulating material and electrical porcelain—not to mention compression tests of other materials specified in the standards. Even a brief examination of these various compression test methods shows clearly the importance of formulating fundamental considerations that will govern compression testing in general, with certain special considerations to be observed in applying the test to specific materials. Sub-committees will therefore be organized to study the various types of test that are applied to materials. The committee will so pursue this study as not to delay unnecessarily the consideration of the specific tests that have been referred to it by the several standing committees.

Representative sub-committees of Committee E-1 are studying in this way the various distillation tests now published by the Society, and the tests for consistency and plasticity and other closely related properties of materials.

### Review of Tentative Definitions of Terms Started

Review of the definitions of some 150 terms that are now in tentative form before the Society was begun at a meeting of the Advisory Committee of Committee E-8 on Nomenclature and Definitions held in New York on October 19. This was the first meeting of the committee, which was recently constituted through the appointment by the Executive Committee of seven "members-at-large," who, together with the Secretary-Treasurer, will constitute the Advisory Committee of Committee E-8. The members thus appointed are:

Cloyd M. Chapman (Chairman)	
G. W. Thompson (Vice-Chairman)	
C. L. Warwick (ex-officio, Secretary)	
F. M. Farmer	R. C. Purdy
K. G. Mackenzie	H. P. Tiemann
L. B. Tuckerman.	

It is the function of Committee E-8 to review these terms and either to approve them or to offer comments and suggestions to the standing committees responsible. As a first step, these definitions will be analyzed and classified by an Editorial Committee consisting of the Secretary and Messrs. Thompson and Tiemann, and will then be considered by representative sub-committees constituted in accordance with the procedure adopted by Committee E-8.

The problem before Committee E-8 is one of considerable magnitude and some time will necessarily be required to work out the details of organization so that these problems of definition and nomenclature can be studied from a broad viewpoint.

### Committee D-15 on Thermometers Organized

A new standing committee on Thermometers was formally organized at the Society headquarters on October 18. The matter of specifications for thermometers has assumed such importance in the Society's work and has come to involve the activities of so many committees and to affect so many of the Society's standards that it was felt very desirable to create a standing committee for the study of this subject. The personnel of the committee follows:

#### NON-PRODUCERS.

Cloyd M. Chapman, Consulting Engineer.  
H. C. Dickinson, Society of Automotive Engineers.  
W. H. Fulweiler, United Gas Improvement Co.  
E. C. Lathrop, E. I. duPont de Nemours & Co.  
E. F. Mueller, U. S. Bureau of Standards.  
C. S. Reeve, The Barrett Co.

#### PRODUCERS.

Ernest Griebel, President, Griebel Instrument Co.  
C. J. Tagliabue, President, C. J. Tagliabue Mfg. Co. (represented by R. M. Wilhelm).  
Taylor Instrument Cos., E. N. Hurlburt.  
Precision Thermometer & Instrument Co., L. G. Wilson.

At the meeting for organization all but one member were present. Mr. Fulweiler, who served by appointment as temporary chairman, was elected the permanent chairman of the committee, and Mr. Mueller secretary. Mr. Lathrop will represent the committee on Committee E-1 on Methods of Testing and Mr. Wilhelm on Committee E-8 on Nomenclature and Definitions.

In the selection of the personnel care was taken to have represented through the experience of the various members the various methods devised by our standing committees that involve temperature measurement by means of thermometers.

In recognition of the need for fundamental discussion of the subject of thermometry, the committee agreed that a survey should be made to analyze the significance of the temperature measurements called for in the various A.S.T.M. tests, and also that the committee should undertake the determination of average stem temperatures in the more important tests. Consideration of the methods of using thermometers is also an important factor.

The committee will materially benefit by work that has been done by the Manufacturing Chemists Association and the American Chemical Society, which has resulted in the adoption by those organizations of two thermometers. The possibility of adapting these thermometers to general use in testing was discussed. A sub-committee was appointed to formulate specifications aiming to harmonize the two existing sets and having in mind particularly the requirements in the present A.S.T.M. standards. This sub-committee will consist of Messrs. Lathrop, chairman, Hurlburt and Mueller.

The chairman has agreed to prepare an analytical chart comparing the requirements of the present A.S.T.M. thermometer specifications, with particular reference to those that are tentative.

The committee felt that there is a big need for a comprehensive discussion of thermometry, which will have for its objects not only a statement of the fundamentals involved in the measure of temperatures by thermometers but will also bring out some of the practical limitations that are imposed by methods of manufacture. The committee feels that too little is known about thermometers from this viewpoint. This discussion will probably take the form of a paper at the next annual meeting, sponsored by the committee and appended to its report.



## Schedule of Committee Meetings.

DATE	COMMITTEE	PLACE
Oct. 25-26....	C-11 on Gypsum.....	Washington.
Oct. 28.....	C-2 on Reinforced Concrete....	Philadelphia.
Oct. 28-29....	D-13 on Textile Materials.....	Providence.
Nov. 1.....	C-9 on Concrete and Concrete Aggregates.....	Philadelphia.
Nov. 1.....	C-10 on Hollow Building Tile....	Chicago.
Nov. 18.....	Advisory Committee and Sub- Committees of Committee E-1 on Methods of Testing....	Philadelphia.
November....	D-4 on Road and Paving Ma- terials.....	
November....	D-9 on Electrical Insulating Materials.....	New York City.
November....	D-11 on Rubber Products.....	New York City.
Dec. 1-2.....	C-7 on Lime.....	Philadelphia.
Dec. 5.....	C-8 on Refractories.....	Pittsburgh.
December....	D-5 on Coal.....	Philadelphia.
Jan. 12.....	Executive Committee.....	Philadelphia.
Jan. 17.....	D-8 on Waterproofing.....	
Jan. 18.....	D-15 on Thermometers.....	Philadelphia.
January.....	Sub-Committees of Committee A-1 on Steel.....	Philadelphia.
January.....	C-1 on Cement.....	New York City.
January.....	C-4 on Drain Tile.....	

**Committee A-1** on Steel held its regular fall meeting at the Society headquarters on October 7, a number of the sub-committees having met on the previous day. The activities of two sub-committees, one of them organized at this meeting, will be of particular interest.

Sub-Committee XIV on Tool Steels is engaged in the preparation of Tentative Specifications for High Speed Tool Steel. The immediate work of preparing these specifications has been delegated to a special committee consisting of Messrs. L. H. Kenney, J. A. Mathews and M. E. McDonnell. Since standard methods of analysis of some of the elements contained in high speed steel have not yet been prepared by the Society, the Sub-Committee, of Committee A-1, on Methods of Chemical Analysis has been requested to develop such standard methods. Certain enlargements of the personnel to make the sub-committee more representative are under way.

A new Sub-Committee XIX on Sheet Steels was organized on October 6. Represented on the sub-committee are the principal producers and users of various types of sheets, such as galvanized and black sheets, deep-drawing and stamping sheets, tin plate, automobile sheets, cold-rolled strip steel, enameling steel, etc. One of the first problems to be undertaken by the sub-committee is the definition of the different grades of sheet steel and the proper differentiation between sheet steel and plate steel as to thickness. With regard to enameling steel, the sub-committee plans to keep in touch with work on this subject that is being done by the American Ceramic Society. The sub-committee is under the chairmanship of Mr. J. M. Darke, General Electric Co., West Lynn, Mass.

**Committee A-2** on Wrought Iron at a meeting held on October 19 in Philadelphia, disposed of a number of routine matters and considered certain criticisms that had been received of the specifications under its jurisdiction.

**Committee A-4** on Heat Treatment of Iron and Steel held a well-attended meeting at the Engineering Societies Building, New York City, on October 14. The application of normalizing treatment to hyper-eutectoid steels and the definition of carburizing are two matters referred to the committee by the Society of Automotive Engineers that the committee will take up. Progress is being made in the preparation of revised Recommended Practice for the Heat Treatment of Steel Castings.

A problem of more than ordinary interest that the committee is undertaking relates to the heat treatment of wrought iron. A sub-committee has outlined three possible lines of work: The relation of composition and heat treatment of wrought iron to its final physical properties; the prevalence

of brittleness in wrought iron when heated to temperatures in the neighborhood of the critical range; and the influence of welding methods and heat treatment on the strength of welds. It has been decided to investigate the first of these problems, and a program of work has been outlined.

The next meeting of the committee will be held in February.

**Committee A-5** on Corrosion of Iron and Steel is taking steps towards bringing about joint action of Committee D-1 on Preservative Coatings for Structural Materials and Committee A-5 in the study of paint-holding properties of various grades of iron and steel. Committee A-5 is prepared to furnish sheets for such a test and also the racks, which are available in Pittsburgh, Fort Sheridan, Ill., and Annapolis, Md. The conclusions to be drawn from the results of such a test should be of considerable interest to manufacturers and consumers of paints and sheet metal.

Consideration will be given by Sub-Committee II to tests on hot-dipped galvanized sheets, pipes, wire, etc. Such tests are designed to determine if there is any basis for specifications for galvanized sheets and pipes.

**Committee B-2** on Non-Ferrous Metals and Alloys is undertaking the preparation of specifications for brass and copper pipe. This is the result of a request from the Committee on Piping of the A.S.M.E. Boiler Code Committee for such specifications for use in the Boiler Code. The preparation of the specifications will be carried on in cooperation with representatives of the Boiler Code Committee.

**Committee C-8** on Refractories has prepared an extensive program of work for its sub-committees during the coming year. At the meeting of the committee in Pittsburgh on December 5 reports of some of these sub-committees will be presented and the work of others outlined. Mr. R. C. Purdy, chairman of the committee, in his call for the meeting, indicated the work of some of the sub-committees as follows:

"Sub-Committee III on Industrial Survey: Cooperative work on foundry refractories by American Foundrymen's Association, the National Research Council and other affiliated associations is under way. R. Moldenke of this committee is a member of the special cooperating committee. For the present, molding sands and special cements only will be considered. The formed foundry refractories will possibly be taken up later. A bibliography on molding sands and one on refractories in general has been prepared by the National Research Council. The latter has been turned over to the American Ceramic Society to be amplified and arranged. Other associations will cooperate in this.

The American Gas Association has spent considerable time and money in thorough plant trials and in investigations all of which is available for review by this sub-committee.

The steel industries use by far the greatest volume of refractories and attempts at survey of refractory requirements of this industry have been made. The producer members of Committee C-8 have done much in determining the character of refractories required in steel industries as have also the users. Sub-Committee III should determine what progress has been made in such a survey by each of these groups, and assemble the information for conference on procedure at the December 5 meeting.

Sub-Committee IV on Thermal Conductivity and Expansion: Mr. P. A. Boeck, formerly chairman of this sub-committee, gathered a bibliography on this subject and the Bureau of Standards has done much in development of methods. This committee has made a start but the information to date should be assembled and ways and means for investigations looking to formulation of Standardization of Methods should be gotten under way. The work of this sub-committee is important.

Sub-Committee IX on Nomenclature: This sub-committee already has submitted definitions for approval and, at request of Committee E-8, these were submitted to that committee as information. The sub-committee is preparing definitions of other terms.

Sub-Committee X on Microstructure: This sub-committee is adding to its personnel by nomination of petrographers interested in refractories. It is its ambition to conduct a systematic study of microstructure of refractories and to this end invites counsel of all members of Committee C-8.

Sub-Committee XI on Precision and Tolerances: One report has been made by this committee and it is expected that as soon as data are assembled a similar study will be made on other tests. They desire the cooperation of all members of Committee C-8

in the compilation of these data. Committee E-1 will issue a questionnaire to all standing committees on this subject, hence Committee C-8 should be prepared to furnish data in reply to such a questionnaire."

**Committee C-11** on Gypsum will hold a meeting in Washington on October 25 and 26. At the same time meetings of sub-committees will be held at which many important items will come up for consideration as outlined by Mr. V. G. Marani, the secretary of the committee, in the notice of the meeting:

**Sub-Committee I** on Gypsum for Various Uses:

- (a) The development of specifications for "crushed" and "ground" gypsum.
- (b) Further investigation as to the permitted impurities in gypsum, now tentatively set at not more than 35.5 per cent by weight.
- (c) Research on the possible use of anhydrite gypsum in the manufacture of Portland cement.
- (d) The development of specifications for the color of calcined gypsum for finishing, casting and molding plasters.

**Sub-Committee II** on Gypsum Plasters:

- (a) The appointment of a sub-committee to take up the fire-resisting properties of gypsum plaster.
- (b) Development of requirements based upon the fire-resisting properties of gypsum plaster.

**Sub-Committee III** on Structural Gypsum Products:

- (a) The appointment of a sub-committee to take up the fire-resisting properties of gypsum structural products.
- (b) Development of requirements based upon the fire-resisting properties of gypsum structural products.
- (c) Consideration of the use of the word "lath" instead of "board" when referring to gypsum plaster board.
- (d) A study of the weights tentatively adopted for gypsum boards, and consideration of omitting the specified minimum weights, using required maximums only.
- (e) Reconsideration of the strength test requirements for gypsum boards, and the adoption of methods for the measurement of thickness.

**Sub-Committee IV** on Testing Methods:

- (a) Consideration of specifications for "consistency" based upon a slump operation machine.
- (b) Reconsideration of specifications for the determination of "Anhydrite."
- (c) The development of a method for the determination of the lowest temperature and shortest time element which will give accurate values for the "free" or "hydroscopic" moisture in gypsum.
- (d) Further consideration of the "Microscopic Examination of Raw or Calcined Gypsum" and methods submitted by E. S. Larsen.
- (e) Consideration of the relative merits of the "Penetration" and "Temperature Rise" methods for the determination of "initial" and "final" set.
- (f) Development of a method for measuring the sand-carrying capacity based upon relative plasticities.

**Sub-Committee V** on Nomenclature:

The development of additional definitions of terms used in the gypsum industry.

It is the hope of the committee not only to accomplish considerable work at the meeting but to plan a more extensive program for work during the coming year.

**Committee D-1** on Preservative Coatings for Structural Materials is planning certain tests which will be of interest to paint consumers. The first, under the jurisdiction of Sub-Committee XXIII, will be tests of anti-fouling paints. The sub-committee has already put out two sets of steel panels, one in Raritan Bay, N. J., and the other in the bay at Charleston, S. C. The tests include quite a large number of different paints. They are virtually preliminary tests and probably will be repeated and substantiated by later ones. In addition to the small panel tests, it is desired to make large tests on the bottoms of ships.

Another sub-committee (Sub-Committee XXII) is planning to conduct some large-scale paint-spraying tests on houses. The materials, paint-spraying apparatus, ladders and other equipment have already been donated by the manufacturers so that work should proceed in due course.

Both of these tests should afford considerable valuable information.

**Committee D-2** on Petroleum Products and Lubricants held a meeting in New York on September 10. At this meeting a new Sub-Committee on Gas Oils was created which expects to engage in cooperative work with the American Gas Association. The work of the remaining sub-committees is proceeding satisfactorily and it is hoped that a number of additional tests may be prepared during the year for presentation at the next annual meeting: among these, methods of test for emulsification, for determination of oil and moisture in wax, and for analyzing grease.

**Committee D-5** on Coal is now undertaking the development of specifications for standard anthracite sizes. To facilitate this work a sub-committee has been appointed on Forms of Specifications. This sub-committee will act in cooperation with a Fuel Committee of the National Association of Purchasing Agents. This joint committee held a meeting at the convention of the National Association at Indianapolis on October 10 at which the work of preparing the specifications was started.

**Committee D-7** on Timber is taking considerable interest in the work of the Sub-Committee on Unification of Distillation Tests of Committee E-1. The products requiring distillation in which Committee D-7 is concerned are creosote and other oils used in the preservation of timbers. Analyses on such oils have usually been made by means of a retort, whereas the apparatus recommended for other distillation tests has usually been a flask. Committee D-7 will make a scientific study of creosote distillation to determine which apparatus is best suited for the purpose.

The committee is making good progress in the formulation of methods of testing small, clear specimens of wood. It is expected that a tentative draft of the methods will soon be prepared, and they may possibly be ready for presentation at the next annual meeting of the Society.

**Committee D-8** on Waterproofing is taking steps to secure additional representation of engineers and users of waterproofing on the committee and is establishing contact through direct representation with the Masonry Committee of the A.R.E.A. The committee met in New York City on September 15 to discuss means of reawakening interest in its work and of bringing to a conclusion a number of studies that have been under way. At this meeting reports were received from four sub-committees dealing with nomenclature and definitions, research and standardization of tests for waterproofing materials, bituminous grouts and mastics, and membrane materials. The Sub-Committee on Membrane Materials has made considerable progress in the development of Methods for Examining Felted and Woven Fabrics Saturated with Bituminous Substances for Use in Waterproofing. A report covering these methods was accepted by the committee, and criticisms and suggestions from the members will be considered at the next meeting, which is to be held January 17, 1922.

**Committee D-10** on Shipping Containers is giving considerable attention to the preparation of suitable nomenclature and definitions relating to shipping containers. At the present time there is a great need for standard definitions of packages and parts of packages. There is very little uniformity in the present designations, barrels being called tanks or drums, skids called crates and bundles called bales, etc. A standard nomenclature would be a great help to the shipping industry, particularly in connection with export shipment. Accordingly Committee D-10 considers this as an important part of its work and is taking up definitions through various business associations, traffic managers and various transportation companies.

In addition, work is being done on the preparation of additional specifications for various types of containers such as barrels, crates, and several types of boxes.

**Committee D-14** on Screen Wire Cloth, at a meeting held in Philadelphia on October 21, gave considerable attention to specifications for weaving wire. Sub-committees are actively at work.



